

United States Army School of Aviation Medicine  
Fort Rucker, Alabama  
DECEMBER 2004



LESSON PLAN

TITLE: STRESS AND FATIGUE

FILE NUMBER: U3004494 / Version 1

PROPONENT FOR THIS LESSON IS:

United States Army School of Aviation Medicine  
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**Stress and Fatigue in the Aviation Environment**  
**U3004494 / Version 1**  
**14 Dec 2004**

<b>Prerequisite Lesson(s)</b>	<u>Lesson Number</u>	<u>Lesson Title</u>
	None	

<b>Clearance Access</b>	Security Level: Unclassified Requirements: There are no clearance or access requirements for the lesson.
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<b>Foreign Disclosure Restrictions</b>	FD5. This product/publication has been reviewed by the product developers in coordination with the USASAM foreign disclosure authority. This product is releasable to students from all requesting foreign countries without restrictions.
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<b>References</b>	<u>Number</u>	<u>Title</u>	<u>Date</u>	<u>Additional Information</u>
	0-291-39857-X	Flight Stress: Stress, Fatigue and Performance in Aviation	01 Jan 1994	
	DA PAM 600-24	Suicide Prevention and Psychological Autopsy	30 Sep 1988	
	FM 3-04.301	Aeromedical Training for Flight Personnel	29 Sep 2000	

<b>Student Study Assignments</b>	Study student handout and review reference materials listed above.
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<b>Terminal Learning Objective</b>	<b>Action:</b>	Manage the effects of stress and fatigue.
	<b>Conditions:</b>	While performing as an aircrew member.
	<b>Standards:</b>	In accordance with (IAW) FM 3-04.301, the Leader's Guide to Crew Endurance, Flight Stress, Flight Psychology, Fundamentals of Aerospace Medicine, and DA PAM 600-24.

<b>Safety Requirements</b>	None.
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<b>Risk Assessment Level</b>	Low - RISK ASSESSMENT LEVEL: Low.
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<b>Environmental Considerations</b>	<b>NOTE:</b> It is the responsibility of all soldiers and DA civilians to protect the environment from damage. None.
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<b>Evaluation</b>	On the last day of aviation medicine academics, each student will be evaluated on this block with a 50 question examination in which they must answer 35 of 50 questions correctly to receive a passing score. The test will be given in room X110
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**A. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the three definitions of stress.
<b>CONDITIONS:</b>	Given a list of definitions.
<b>STANDARDS:</b>	IAW FM 3-04.301, Flight Stress, and Health Psychology.

1. Learning Step / Activity 1. Provide instruction on the three definitions of stress.

a. Walter Cannon (1932) researched the "fight-or-flight" response, and linked this to the arousal of the sympathetic nervous system and endocrine system. The "rush", or "cranked-up" feeling when frightened or surprised is a result of the rapid arousal of these systems.

b. Hans Selye (1956), considered by many to be the father of stress research, defined stress as the nonspecific response of the body to any demand placed upon it. He called this pattern of responding the "General Adaptation Syndrome", which consists of three stages:

- (1) Alarm Stage - the organism is mobilized to meet the threat.
- (2) Resistance Stage - the organism attempts to cope with the threat.
- (3) Exhaustion Stage - the organism fails to successfully cope with the threat.

c. Lazarus (1968) researched the "psychological appraisal process". This model suggests that when confronted with a potential stressor, humans simultaneously evaluate the meaning of the event (positive, negative, neutral), the degree of harmfulness associated with the event, and their available coping resources. According to this model, stress is defined as greater perceived threat than perceived coping abilities.

**B. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the signs and symptoms of stress.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301.

1. Learning Step / Activity 1. Provide instruction on the signs and symptoms of stress.

a. Physical responses to stress include both immediate symptomatology, and potentially long-term health consequences of unmanaged stress:

(1) Symptomatology includes, but is not limited to:

- (a) Sweaty palms.
- (b) Increased heart rate and blood pressure.
- (c) Trembling.
- (d) Shortness of breath.

- (e) Gastrointestinal distress.
- (f) Muscle tension.

(2) Potentially long-term health consequences:

- (a) Sleep problems (insomnia).
- (b) Backaches and other muscle pain.
- (c) High blood pressure.
- (d) Immune system suppression.
- (e) Fatigue.
- (f) Anxiety disorders.

b. Emotional signs and symptoms can include:

- (1) Irritability.
- (2) Hostility.
- (3) Anxiety, or increased worrying.
- (4) Decreased self-esteem.
- (5) Feelings of helplessness.
- (6) Loss of interest in pleasurable activities (anhedonia).

c. Cognitive signs and symptoms can include:

- (1) Obsessions.
- (2) Decreased attention.
- (3) Impaired memory.
- (4) Impaired judgment.
- (5) Poor psychomotor coordination (hand-eye coordination).

d. Behavioral signs and symptoms are limitless, and can include:

- (1) Explosiveness.
- (2) Withdrawal or social isolation.
- (3) Alcohol or substance abuse.
- (4) Suicide.

### C. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the correct actions to prevent suicide in a coworker who hints about suicide.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW DA PAM 600-24.

1. Learning Step / Activity 1. Provide instruction on the correct actions to prevent suicide in a coworker who hints about suicide.

a. Danger signs for suicide risk include:

- (1) Talking or hinting about suicide.
- (2) Giving away possessions or making a will.
- (3) Obsession with death.
- (4) Specific plan, with access to lethal means.
- (5) Buying a gun.
- (6) History of suicide attempts.
- (7) Alcohol or substance abuse.

b. Actions to be taken to prevent suicide:

- (1) Talk supportively, not judgmentally.
- (2) Be direct. Talking about suicide will not provoke it. If you suspect suicidal ideation, ask. Suicidal individuals will most likely be relieved that someone is concerned about them. Admitting to suicidal ideation is often a cry for help, and failing to address the matter directly may have disastrous results.
- (3) Ensure the soldier receives prompt medical attention by escorting the Individual to the flight surgeon, emergency room, mental health clinic, or unit commander. Once a soldier is put in contact with these resources, well established procedures will ensure the service member is appropriately evaluated and treated.

### D. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Identify the different classes of stressors.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301

1. Learning Step / Activity 1. Provide instruction on the different classes of stressors.

a. Environmental stressors

- (1) Altitude
- (2) Heat
- (3) Cold
- (4) Terrain
- (5) Weather
- (6) Ergonomics

b. Psychosocial stressors

- (1) Marriage
- (2) Death in the family
- (3) Reassignment
- (4) Illness or injury to self, family, or close friend

c. Cognitive stressors

(1) We can increase our stress by the way we view situations and events. The following is a list of cognitive “bad habits”:

(a) “All or nothing thinking”, e.g., “either I get an award for my work performance or I am a failure”. There is no “in between” or flexibility in such thinking.

(b) “Failure to focus on the here and now” involves distracting oneself from the task at hand by worrying about mistakes of the past or potential problems in the future.

(c) Too many “musts” and “shoulds”. We increase our stress when we expect that events must turn out exactly as we expect.

d. Alcohol use.

(1) Affects judgment, thermal stress tolerance, visual acuity, perception, coordination and communication. Can be fatal in large quantities or when operating a vehicle or other machinery.

(2) 12-hour bottle to brief rule (AR 40-8 Temporary Flying Restrictions Due to Exogenous Factors).

(3) Alcohol use is potentially hazardous and should be treated like any other hazard, with a risk management approach. Each individual must realistically assess his/her alcohol abuse potential considering factors such as family history of alcoholism, current stressors and emotional state, and personal history of alcohol use. Then the individual must take countermeasures (e.g., limiting or eliminating alcohol use) to reduce the hazard potential.

#### E. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the factors that determine the impact of stress on performance.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301; Flight Stress.

1. Learning Step / Activity 1. Provide instruction on the factors that determine the impact of stress on performance.

a. Mental skills required by the task or situation.

b. Stress characteristics of the situation.

c. Individual's biological make-up.

d. Individual's psychological make-up.

e. The "Yerkes-Dodson Law" suggests an inverted "U" relationship between stress and performance, with moderate levels of stress resulting in the best performance. While this relationship may be true for measures of arousal (coma vs. over arousal), research has not demonstrated this relationship with regard to human performance, especially aviation performance. In fact, increased levels of stress have not reliably been correlated with increased performance to date. While both positive and negative events may lead to stress (i.e. death of spouse vs. having children), the experience of stress is rarely appraised as a positive experience. As such, the inverted "U" relationship between stress and performance has not been reliably demonstrated in research.

#### F. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the impact of stress on pilot performance.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW Flight Stress.

1. Learning Step / Activity 1. Provide instruction on the impact of stress on pilot performance.

a. Pilots rely upon several cognitive abilities to successfully perform their mission. These abilities include:

(1) Psychomotor abilities, which include hand-eye coordination, muscular coordination, and strength.

(2) Attention is the cognitive ability to focus a "mental spotlight" on sensory inputs, motor control, memories, or internal representations. It can be allocated to different activities based on perceived importance, or salience.

(3) Memory is the ability to recall previously learned information. Memory abilities are dependent upon one's memory capacity, memory strategies, and

rehearsal, which serve to facilitate the transfer of information from short-term to long-term storage.

(4) Judgment and decision making.

(5) Prioritization of tasks.

(6) Communication.

b. Both self-imposed stress and aviation-specific stress have the following effects on the above noted cognitive abilities of pilots:

(1) Psychomotor abilities decline. For example, tracking abilities decrease, with a tendency toward more time off-target, overcorrections, and less smooth movements.

(2) Attentional abilities may be compromised during stress in the following ways:

(a) "Perceptual Tunneling" is the narrowing of sensory information processed by the brain (i.e. visual field). This can result from both emotional stress and cognitive workload, and can occur in both visual and non-visual sensory channels. For example, a pilot may attend to the most significant stimuli (brightest light, loudest noise) at the expense of other perceptual cues.

(b) "Cognitive Tunneling" is the narrowing of what is considered important in the attentional field. An example would be a pilot who does not appropriately monitor his airspeed because he is intently focusing on making the proper radio call at the proper time.

(c) "Task Shedding" is tunneling carried to the extreme. This is when entire tasks are completely abandoned. For example, tunneling may be missing a radio call while on approach with a caution light illuminated, while task shedding is forgetting to do the pre-landing checks altogether.

(3) Memory abilities decline in the following manner:

(a) Overall memory capacity declines under stress. Whereas the average individual can hold 7 (+/- 2 digits) in memory for a short time, this declines under stress.

(b) Memory strategies are subject to two common errors under stress:

1. The "Simplification Heuristic" is the tendency to oversimplify information recalled from memory during the problem-solving or decision-making process.

2. The "Speed/Accuracy Tradeoff" is the attempt to maintain the speed of one's responses at the expense of accuracy (most common), or the attempt to maintain the accuracy of one's responses at the expense of speed (experienced pilots).

(c) Stress also decreases the ability to learn new information. "Stress Related Regression" is the tendency to forget recent learning and revert to old behaviors under stress.

(d) Once information has been learned and is in long-term storage (like driving a car or doing simple arithmetic), it is fairly resilient to stress.

(4) Judgment and decision-making abilities may be compromised by stress, with inexperienced pilots tending to make a disorganized assessment of alternatives, to rush to a decision, and to seek premature closure.

(5) Communication abilities may be compromised by both the speaker and listener under stress, with changes in speech production, comprehension, and "group think". Group think is the tendency to be more confident of our opinions when they are shared by others, and the tendency to rely on authority figures when there is a perceived threat. This process may impede communication when perceptions differ between group members.

## G. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Match individual stress coping mechanisms with the four classes of stress coping mechanisms.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301.

1. Learning Step / Activity 1. Provide instruction on the four classes of stress coping mechanisms.

a. Avoid stressors:

(1) This is the most powerful technique because it involves preventing your exposure to known stressful events.

(2) Examples include good time management, tough realistic training, good problem solving skills, and good nutrition.

(3) Practice good cockpit and crew communication:

(a) Talk.

(b) Ask questions.

(c) Utilize 3-way confirm responses.

(d) Brief for lost communications.

b. Change your thinking:

(1) Avoid thoughts that reinforce a sense of invulnerability, impulsivity, and machismo.

(2) Avoid absolutes and perfectionism.

(3) Avoid a "pessimistic explanatory style", which is the tendency for one to attribute the negative events of their lives to an internal cause that is both global and stable (i.e. "I am inadequate at everything and I always will be.").

(4) Focus on the here and now.

(5) Recognize the choices you make, and increase your sense of personal control.

(6) Utilize positive and empowering self-statements.

c. Learn to relax:

(1) The opposite of stress is relaxation. You cannot be stressed and relaxed at the same time, so learn to relax to combat your stress.

(2) Utilize deep breathing, in particular diaphragmatic breathing, progressive muscle relaxation, or guided imagery to induce a relaxation response.

(3) Don't let a busy schedule crowd out the activities that you normally do to relieve stress (i.e. hobbies).

d. Ventilating stress:

(1) A regular exercise routine of 30 minutes of aerobic activity three to four times a week has been shown to help prevent stress and combat its effects.

(2) Talk it out to gain support and understanding. Talk to professionals to gain insight about problem-solving methods when support from others doesn't ameliorate the stressor. Resources include:

(a) Friends and family members.

(b) Flight surgeon and aeromedical physical assistant.

(c) Psychiatrist, psychologist, and social worker.

(d) Chaplain.

(e) ADAPCP (Army Drug and Alcohol Prevention and Treatment Program).

## H. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the factors that will decrease one's vulnerability to combat stress.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW Flight Stress and FM 22-51.

1. Learning Step / Activity 1. Provide instruction on the factors that will decrease one's vulnerability to combat stress.

a. Combat Stress is a range of signs and symptoms that may be experienced by soldiers in combat. Examples of signs and symptoms, in increasing severity, include:

- (1) Hyperalertness
- (2) Fear, anxiety
- (3) Physical stress complaints
- (4) Loss of confidence
- (5) Impaired duty performance
- (6) Erratic actions, outbursts
- (7) Freezing, immobility
- (8) Impaired speech or muteness
- (9) Impaired vision, touch, or hearing
- (10) Weakness and paralysis
- (11) Hallucinations, delusions

b. If less severe warning signs respond quickly to helping actions, continue to monitor the soldier until all signs resolve. The soldier will likely not need to be evacuated or relieved of his duties. If warning signs persist and/or worsen, and interfere with the soldier's duty performance, medical treatment facilities can provide brief restorative treatment with a timely return to duty.

c. Factors that may decrease one's vulnerability to combat stress include:

- (1) Competence in your work
- (2) Confidence in your abilities
- (3) High morale, group cohesion, and esprit de corps
- (4) Control, or even perceived control

**I. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the definition of fatigue.
<b>CONDITIONS:</b>	Given a list of definitions.
<b>STANDARDS:</b>	IAW FM 3-04.301, and Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the definition of fatigue.

a. Fatigue is the state of feeling tired, weary, or sleepy that results from periods of anxiety, exposure to harsh environments, or loss of sleep.

b. Sleep deprivation, disrupted diurnal cycles, and stressful life events all play a role in producing fatigue and impairing performance.

## J. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the three types of fatigue.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301, and Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the three types of fatigue.

a. Acute.

(1) Associated with physical or mental activity between two regular sleep periods

(2) Eliminated after a regular sleep period.

b. Chronic.

(1) Results from an inadequate recovery from successive periods of acute fatigue

(2) One regular sleep period will not eliminate chronic fatigue; however, several sleep periods and reduced interim activity can help eliminate it.

c. Motivational exhaustion or "burnout".

(1) Poorly managed stress (i.e., unresolved psychosocial problems, prolonged frustration, excessive worry, loss of control) will lead to exhaustion and burnout.

(2) Without resolution of the stress, restorative measures may only have temporary effects.

(3) Burnout is especially dangerous if unrecognized.

## K. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the signs and symptoms of fatigue.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301 and Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the signs and symptoms of fatigue.

a. Fatigue is the state of feeling tired, weary, or sleepy that results from periods of anxiety, exposure to harsh environments, or loss of sleep.

b. Sleep deprivation, disrupted diurnal cycles, and stressful life events all play a role in producing fatigue and impairing performance.

c. Signs and symptoms of fatigue include:

- (1) Attention and concentration are difficult.
- (2) Feel or appear dull and sluggish.
- (3) General attempt to conserve energy.
- (4) Feel or appear careless, uncoordinated, confused, and irritable.
- (5) The cognitive deficits are often seen before the physical effects are felt. Therefore, fellow crew members may notice an aviator's decreased attention and concentration abilities before the aviator is aware of it.

#### L. ENABLING LEARNING OBJECTIVE

<b>ACTION:</b>	Select the effects of fatigue on performance.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301, Flight Stress, and Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the effects of fatigue on performance.

a. Reaction times increase, and the quality of motor movements decrease through:

- (1) Errors in timing and accuracy of responses.
- (2) Not as smooth on the controls.
- (3) Slow and irregular motor inputs.

b. Attention is reduced:

- (1) A "Lapse" of attention is a transient episode of a complete loss of awareness and failure to respond to external stimuli. This is also referred to as "microsleeps". These usually last from 1 to 10 seconds, and increase in number and duration as sleep deprivation increases.
- (2) Cognitive and Perceptual Tunneling under stress.
- (3) Need enhanced stimuli to maintain attention.
- (4) Overall reduced audio-visual scan.

c. Memory is diminished:

- (1) Inaccurate recall of operational events.
- (2) Ability to learn new information is compromised.

d. Overall poor and careless performance.

e. Greater tolerance for error.

f. Impairments in communication, cooperation, and crew coordination:

- (1) Conversations become more fragmented and repetitive.
- (2) Misinterpretations occur more easily.
  
- (3) Increased potential for error in communicating critical mission, flight, or safety information.

**M. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the characteristics of the body's diurnal rhythms.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the characteristics of the body's diurnal rhythms.

a. We have an intrinsic biological clock with a cycle of roughly 24-25 hours.

b. The diurnal rhythms control:

- (1) Alertness.
- (2) Core body temperature.
- (3) Heart rate.
- (4) Hormonal secretions.

c. Performance varies with these cycles. In the typical circadian cycle, performance peaks between 0800 and 1200 hours, and falls to a minimum circadian trough between 0300 and 0600.

d. While the body clock is inherently capable of monitoring the passage of time, it differs from most clocks in that it is flexible and must be set, or synchronized, before it can accurately predict the timing of events. External synchronizers, or Zeitgeber (German for "time givers") are:

- (1) Sunrise or sunset.
- (2) Ambient temperature.
- (3) Social cues and meals.

**N. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the definition of circadian desynchronization.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the definition of circadian desynchronization.

a. Circadian Desynchronization, or "jet lag", is due to rapid travel from one time zone to another, which causes the body to resynchronize its diurnal rhythms to the local geophysical and social cues. Until intrinsic rhythms are reset, sleep disorders and fatigue will prevail.

(1) Eastward travel shortens the day.

(2) Westward travel lengthens the day.

(3) Resynchronization occurs much more rapidly when traveling west.

b. Shift work can have effects similar to crossing time zones due to the changes in light exposure and activity times.

**O. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the characteristics of the sleep cycle.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the characteristics of the sleep cycle.

a. Sleep is not simply being unconscious. It is a life-essential, active, recuperative process.

b. The sleeping brain cycles through rapid eye movement (REM) and Non-REM sleep stages. It takes about 90 minutes to cycle once through all these stages of sleep, and the brain normally cycles through this 5 to 6 times a night. As a result, the average person sleeps 7 to 9 hours per night.

c. The duration and quality of sleep are dependent upon body temperature. People sleep longer and report a better night's sleep when they retire near the temperature trough.

d. It is the timing of sleep, not necessarily the amount of sleep that is most significant.

e. Sleep efficiency deteriorates with age. Older individuals spend less time in deep Non-REM sleep, and nighttime awakenings are more common.

**P. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Identify the factors that determine the sleep required by the average aircrew member.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the factors that determine the sleep required

- a. Individuals cannot accurately determine their own impairment from sleep loss.
- b. Sleep can be reduced 1 to 2 hours without performance decrement over an extended period, although the individual must return to a normal sleep length once the period ends.
- c. Five hours a night is the absolute minimum for CONOPS (i.e. 14 days).
- d. Some individuals may tolerate as little as 4 hours per night for short periods (up to a week), but there is no easy way to determine who will function best with the least sleep.
- e. Sleep restriction decisions and crew endurance planning should consider:
  - (1) The complexity of the job.
  - (2) The potential for loss from errors.
  - (3) Individual tolerance to sleep loss.

**Q. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select strategies for preventing fatigue.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301, Fundamentals of Aerospace Medicine, and Leader's Guide to Crew Endurance.

- 1. Learning Step / Activity 1. Provide instruction on the strategies for preventing fatigue.
  - a. Schedule appropriate sleep periods.
  - b. Prevent and/or control circadian desynchronization by maintaining a consistent sleep schedule. If circadian desynchronization is unavoidable (shift work or time zone change), then implement countermeasures to ensure adequate sleep quality such as:
    - (1) Minimizing daylight exposure during sleep periods.
    - (2) Controlling the sleep environment (dark, cool, noise).
    - (3) Utilize napping.
  - c. Build endurance through physical conditioning and good stress management skills.
  - d. Practice good nutrition habits.
  - e. Practice good "Sleep Hygiene":
    - (1) Use bed for sleep and sex only.
    - (2) Establish a bedtime routine.
    - (3) Avoid looking at clocks. Instead, set backup alarms.

f. Napping:

(1) When sleep is not available, or shortened by operational constraints, naps are a viable alternative.

(2) Naps as short as 10-minutes are restorative.

(3) Longer naps (greater than 45-minutes to 1 hour) may result in a period of sluggishness called "Sleep Inertia", which can last for 5- to 20- minutes after awakening.

(4) Best to nap during circadian troughs (0300 to 0600, and about 1300 to 1500).

**R. ENABLING LEARNING OBJECTIVE**

<b>ACTION:</b>	Select the appropriate treatments for sleep deprivation and fatigue.
<b>CONDITIONS:</b>	Given a list.
<b>STANDARDS:</b>	IAW FM 3-04.301 and Leader's Guide to Crew Endurance.

1. Learning Step / Activity 1. Provide instruction on the appropriate treatments for sleep deprivation and fatigue.

- a. Get adequate rest and natural sleep (not drug-induced). Alcohol is the most common sleep aid in the United States, but it suppresses REM sleep and will leave you feeling unrefreshed upon awakening.
- b. Control the sleep environment.
- c. Rotate duties to avoid boredom.
- d. Avoid complex tasks that require intense mental activity.
- e. Limit work periods and delegate responsibility. If possible, suspend activity during periods when fatigue is higher and efficiency is lower.
- f. Remove yourself from flying duties when fatigue affects the safety of flight.
- g. Use brief periods of exercise to increase your level of alertness.
- h. Practice good nutrition habits by limiting caffeine and eating in moderation.